**LAMPIRAN**

**Lampiran 1. Foto Kegiatan**

A circuit board with a small white object

Description automatically generated with medium confidence

**Lampiran 2. Program Alat Keseluruhan**

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| #include <WiFi.h>  #include "esp\_camera.h"  #include <WiFiClientSecure.h>  #include <time.h>  // === PIN Konfigurasi ESP32-CAM AI-Thinker ===  #define PWDN\_GPIO\_NUM 32  #define RESET\_GPIO\_NUM -1  #define XCLK\_GPIO\_NUM 0  #define SIOD\_GPIO\_NUM 26  #define SIOC\_GPIO\_NUM 27  #define Y9\_GPIO\_NUM 35  #define Y8\_GPIO\_NUM 34  #define Y7\_GPIO\_NUM 39  #define Y6\_GPIO\_NUM 36  #define Y5\_GPIO\_NUM 21  #define Y4\_GPIO\_NUM 19  #define Y3\_GPIO\_NUM 18  #define Y2\_GPIO\_NUM 5  #define VSYNC\_GPIO\_NUM 25  #define HREF\_GPIO\_NUM 23  #define PCLK\_GPIO\_NUM 22  #define FLASH\_LED\_PIN 4  #define PIR\_PIN 13  #define BUZZER\_PIN 12  // === WiFi dan Telegram ===  const char\* ssid = "TADimas";  const char\* password = "12345678";  const char\* BOT\_TOKEN = "8145553540:AAFhNzyZASfj0m8njDLgIbqw0vAVDFPsueU";  const char\* CHAT\_ID = "5537985314";  void startCamera() {  camera\_config\_t config;  config.ledc\_channel = LEDC\_CHANNEL\_0;  config.ledc\_timer = LEDC\_TIMER\_0;  config.pin\_d0 = Y2\_GPIO\_NUM;  config.pin\_d1 = Y3\_GPIO\_NUM;  config.pin\_d2 = Y4\_GPIO\_NUM;  config.pin\_d3 = Y5\_GPIO\_NUM;  config.pin\_d4 = Y6\_GPIO\_NUM;  config.pin\_d5 = Y7\_GPIO\_NUM;  config.pin\_d6 = Y8\_GPIO\_NUM;  config.pin\_d7 = Y9\_GPIO\_NUM;  config.pin\_xclk = XCLK\_GPIO\_NUM;  config.pin\_pclk = PCLK\_GPIO\_NUM;  config.pin\_vsync = VSYNC\_GPIO\_NUM;  config.pin\_href = HREF\_GPIO\_NUM;  config.pin\_sccb\_sda = SIOD\_GPIO\_NUM;  config.pin\_sccb\_scl = SIOC\_GPIO\_NUM;  config.pin\_pwdn = PWDN\_GPIO\_NUM;  config.pin\_reset = RESET\_GPIO\_NUM;  config.xclk\_freq\_hz = 20000000;  config.pixel\_format = PIXFORMAT\_JPEG;  config.frame\_size = FRAMESIZE\_HQVGA;  config.jpeg\_quality = 12;  config.fb\_count = 1;  config.grab\_mode = CAMERA\_GRAB\_LATEST;  config.fb\_location = CAMERA\_FB\_IN\_PSRAM;  esp\_err\_t err = esp\_camera\_init(&config);  if (err != ESP\_OK) {  Serial.printf("Camera init failed: 0x%x\n", err);  while (true);  }  }  void sendPhotoToTelegram() {  digitalWrite(FLASH\_LED\_PIN, HIGH);  delay(200);  camera\_fb\_t \*fb = esp\_camera\_fb\_get();  digitalWrite(FLASH\_LED\_PIN, LOW);  if (!fb) {  Serial.println("❌ Camera capture failed");  return;  }  // Ambil waktu lokal  struct tm timeinfo;  char timeString[30] = "waktu tidak tersedia";  if (getLocalTime(&timeinfo)) {  strftime(timeString, sizeof(timeString), "%d-%m-%Y %H:%M:%S", &timeinfo);  }  String caption = "🚨 Gerakan terdeteksi!\n📷 Gambar diambil oleh ESP32-CAM pada " + String(timeString);  WiFiClientSecure client;  client.setInsecure();  Serial.println("📡 Connecting to Telegram...");  if (!client.connect("api.telegram.org", 443)) {  Serial.println("❌ Connection to Telegram failed");  esp\_camera\_fb\_return(fb);  return;  }  Serial.println("📤 Sending photo...");  String head = "--boundary\r\n"  "Content-Disposition: form-data; name=\"chat\_id\"\r\n\r\n" + String(CHAT\_ID) + "\r\n";  head += "--boundary\r\n"  "Content-Disposition: form-data; name=\"caption\"\r\n\r\n" + caption + "\r\n";  head += "--boundary\r\n"  "Content-Disposition: form-data; name=\"photo\"; filename=\"photo.jpg\"\r\n"  "Content-Type: image/jpeg\r\n\r\n";  String tail = "\r\n--boundary--\r\n";  String requestHead = String("POST /bot") + BOT\_TOKEN + "/sendPhoto HTTP/1.1\r\n" +  "Host: api.telegram.org\r\n" +  "Content-Type: multipart/form-data; boundary=boundary\r\n" +  "Content-Length: " + String(head.length() + fb->len + tail.length()) + "\r\n\r\n";  client.print(requestHead);  client.print(head);  client.write(fb->buf, fb->len);  client.print(tail);  String response = "";  unsigned long timeout = millis();  while (client.connected() && millis() - timeout < 5000) {  while (client.available()) {  char c = client.read();  response += c;  timeout = millis();  }  }  Serial.println("✅ Response from Telegram:");  Serial.println(response);  esp\_camera\_fb\_return(fb);  delay(500);  }  void setup() {  Serial.begin(115200);  pinMode(FLASH\_LED\_PIN, OUTPUT);  pinMode(PIR\_PIN, INPUT);  pinMode(BUZZER\_PIN, OUTPUT);  digitalWrite(FLASH\_LED\_PIN, LOW);  digitalWrite(BUZZER\_PIN, LOW);  WiFi.begin(ssid, password);  Serial.print("🔌 Connecting to WiFi");  while (WiFi.status() != WL\_CONNECTED) {  delay(500);  Serial.print(".");  }  Serial.println("\n✅ WiFi connected");  startCamera();  // Sinkronisasi waktu NTP (WIB GMT+8)  configTime(8 \* 3600, 0, "pool.ntp.org", "time.nist.gov");  Serial.println("⏳ Menyinkronkan waktu...");  struct tm timeinfo;  while (!getLocalTime(&timeinfo)) {  Serial.print(".");  delay(500);  }  Serial.println("\n🕒 Waktu tersinkronisasi");  }  void loop() {  if (digitalRead(PIR\_PIN) == HIGH) {  Serial.println("🚨 Gerakan terdeteksi!");  digitalWrite(BUZZER\_PIN, HIGH);  sendPhotoToTelegram();  digitalWrite(BUZZER\_PIN, LOW);  delay(10000); // delay agar tidak spam, 10 detik  }  delay(100);  } |